

Appl. No. 09/814,260
Office Action mailed 1/11/2006

In the Claims

Claims 1-67 [canceled].

68. [Currently Amended] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid;

controlling at least one operation of the semiconductor processor system responsive to the monitoring; and

wherein the monitoring comprises monitoring turbidity of the process fluid; and

flushing a connection configured to transport the process fluid and the controlling comprises controlling the flushing.

69. [Original] The method according to claim 68 further comprising providing a sample of the process fluid and the monitoring comprises monitoring the sample.

70. [Original] The method according to claim 69 further comprising providing the sample of the process fluid in a substantially static state and the monitoring comprises monitoring the process fluid in the substantially static state.

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71. [Original] The method according to claim 69 wherein the monitoring comprises comparing the sample of the process fluid with a signature.

Claims 72-73 [canceled].

74. [Original] The method according to claim 68 further comprising supplying the process fluid to the process chamber and the monitoring is during the supplying.

75. [Original] The method according to claim 68 further comprising draining the process fluid from the process chamber and the monitoring is during the draining.

76. [Original] The method according to claim 68 wherein the processing comprises processing using a pad, and further comprising extracting process fluid from the pad during the processing and the monitoring comprises monitoring the process fluid after the extracting.

77. [Currently Amended] The method according to claim 68 further comprising transporting the process fluid relative to the process chamber using [[a]] the connection and the monitoring comprises monitoring accumulation of particulate matter within the connection.

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78. [Currently Amended] The method according to claim 68 further comprising:
receiving a start-up command of the semiconductor processor system; and
priming ~~[[a]] the~~ connection configured to transport the process fluid using a flush
fluid responsive to the receiving.

79. [Original] The method according to claim 78 wherein the priming comprises
priming with flush fluid comprising the process fluid.

80. [Currently Amended] The method according to claim 78 wherein the
monitoring comprises monitoring the turbidity of the flush fluid during the priming ~~and the~~
~~controlling comprises controlling the priming.~~

81. [Currently Amended] The method according to claim 68 further comprising:
receiving a halt command of the semiconductor processor system; and
~~wherein the flushing a connection configured to transport the process fluid~~
comprises flushing responsive to the receiving.

82. [Original] The method according to claim 81 wherein the flushing comprises
flushing with flush fluid comprising a rinse fluid.

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83. [Currently Amended] The method according to claim 81 wherein the monitoring comprises monitoring the turbidity of the flush fluid during the flushing ~~and the controlling comprises controlling the flushing.~~

84. [Original] The method according to claim 68 further comprising mixing plural components to provide the process fluid and the controlling comprises controlling the mixing.

85. [Original] The method according to claim 68 further comprising storing historical data of the process fluid after the monitoring.

86. [Original] The method according to claim 68 wherein the processing comprises chemical-mechanical polishing the semiconductor workpiece.

87. [Currently Amended] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system adapted to process a semiconductor workpiece using a process fluid;

providing a sample of the process fluid in a substantially static state;

monitoring the sample of the process fluid; and

controlling an operation of the semiconductor processor system responsive to the monitoring; and

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wherein the controlling the operation comprises controlling a flush system to at least one of prime and rinse a connection configured to transport the process fluid.

88. [Original] The method according to claim 87 wherein the monitoring comprises monitoring the turbidity of the sample of the process fluid.

89. [Original] The method according to claim 87 wherein the monitoring comprises monitoring differential turbidity of the sample of the process fluid.

90. [Original] The method according to claim 89 wherein the monitoring comprises monitoring differential turbidity with respect to different moments in time.

91. [Original] The method according to claim 87 wherein the monitoring comprises comparing the sample of the process fluid with a signature.

92. [Canceled].

93. [Original] The method according to claim 87 wherein the controlling comprises controlling a recirculation system to recirculate the process fluid.

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94. [Original] The method according to claim 87 further comprising monitoring an operation of the semiconductor processor system and the providing the sample comprises providing the sample during defined operations of the semiconductor processor system.

95. [Original] The method according to claim 87 further comprising storing historical data of the process fluid after the monitoring.

Claims 96-102 [Canceled].

103. [Currently Amended] A semiconductor workpiece processing method comprising:

providing a semiconductor processor adapted to process a semiconductor workpiece using a process fluid;

transporting the process fluid relative to the semiconductor processor;

monitoring turbidity of the process fluid; ~~and~~

recirculating the process fluid after the monitoring; and

wherein the recirculating comprises recirculating responsive to the turbidity of the process fluid being out of specification.

104. [Canceled].

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105. [Previously Presented] The method according to claim 103 wherein the transporting comprises supplying the process fluid to a semiconductor processor after the recirculating.

Claims 106-117 [Canceled].

118. [Previously Presented] A semiconductor workpiece processing method comprising:

providing a semiconductor processor adapted to process a semiconductor workpiece using a process fluid;

transporting the process fluid relative to the semiconductor processor using a connection;

monitoring accumulation of particulate matter within the connection; and

controlling at least one operation of a semiconductor processor system comprising the semiconductor processor responsive to the monitoring.

119. [Original] The method according to claim 118 wherein the transporting comprises transporting using a substantially horizontal connection.

120. [Original] The method according to claim 119 wherein the monitoring comprises monitoring in a substantially vertical direction.

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121. [Original] The method according to claim 118 wherein the monitoring comprises monitoring turbidity.

122. [Original] The method according to claim 118 wherein the controlling comprises controlling a flushing operation of the connection responsive to the monitoring.

123. [Original] The method according to claim 118 wherein the controlling comprises controlling a recirculating operation of the connection responsive to the monitoring.

124. [Original] The method according to claim 118 wherein the transporting comprises supplying process fluid to a process chamber of the semiconductor processor system.

125. [Original] The method according to claim 118 wherein the transporting comprises draining process fluid from a process chamber of the semiconductor processor system.

Claims 126-129 [Canceled].

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130. [Previously Presented] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid;

controlling at least one operation of the semiconductor processor system responsive to the monitoring; and

flushing a connection configured to transport the process fluid, and the controlling comprises controlling the flushing.

131. [Previously Presented] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid;

controlling at least one operation of the semiconductor processor system responsive to the monitoring; and

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transporting the process fluid relative to the process chamber using a connection and the monitoring comprises monitoring accumulation of particulate matter within the connection

132. [Previously Presented] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid;

controlling at least one operation of the semiconductor processor system responsive to the monitoring;

receiving a start-up command of the semiconductor processor system; and

priming a connection configured to transport the process fluid using a flush fluid responsive to the receiving.

133. [Previously Presented] The method according to claim 132 wherein the priming comprises priming with flush fluid comprising the process fluid.

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134. [Previously Presented] The method according to claim 133 wherein the monitoring comprises monitoring turbidity of the flush fluid during the priming and the controlling comprises controlling the priming.

135. [Previously Presented] A semiconductor workpiece processing method comprising:

providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;

processing the semiconductor workpiece within the process chamber using a process fluid;

monitoring the process fluid;

controlling at least one operation of the semiconductor processor system responsive to the monitoring;

receiving a halt command of the semiconductor processor system; and

flushing a connection configured to transport the process fluid responsive to the receiving.

136. [Previously Presented] The method according to claim 135 wherein the flushing comprises flushing with flush fluid comprising a rinse fluid.

137. [Canceled].

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138. [Previously Presented] The method according to claim 87 wherein the providing the sample comprises controlling extraction of the sample of the process fluid from a distributor configured to provide the process fluid.

139. [Previously Presented] The method according to claim 68 wherein the monitoring comprises monitoring the sample of the process fluid in the substantially static state.

140. [Previously Presented] The method according to claim 68 wherein the monitoring comprises monitoring a percent of solids present within a liquid of the process fluid.

141. [Previously Presented] The method according to claim 103 wherein the monitoring comprises monitoring the process fluid being transported.

142. [Previously Presented] The method according to claim 103 wherein the monitoring comprises monitoring a percent of solids present within a liquid of the process fluid.

Claims 143-147 [Canceled].

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148. [Previously Presented] The method according to claim 88 wherein the monitoring comprises monitoring a percent of solids present within a liquid of the sample of the process fluid to monitor the turbidity.

149. [Previously Presented] The method according to claim 134 wherein the monitoring comprises monitoring a percent of solids present within a liquid of the flush fluid to monitor the turbidity.

150. [New] A semiconductor workpiece processing method comprising:
providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;
processing the semiconductor workpiece within the process chamber using a process fluid;
monitoring the process fluid;
controlling at least one operation of the semiconductor processor system responsive to the monitoring;
wherein the monitoring comprises monitoring turbidity of the process fluid; and
transporting the process fluid relative to the process chamber using a connection and the monitoring comprises monitoring accumulation of particulate matter within the connection.

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151. [New] A semiconductor workpiece processing method comprising:
providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;
processing the semiconductor workpiece within the process chamber using a process fluid;
monitoring the process fluid;
controlling at least one operation of the semiconductor processor system responsive to the monitoring;
wherein the monitoring comprises monitoring turbidity of the process fluid;
receiving a start-up command of the semiconductor processor system; and
priming a connection configured to transport the process fluid using a flush fluid responsive to the receiving.

152. [New] The method of claim 151 wherein the priming comprises priming with flush fluid comprising the process fluid.

153. [New] The method of claim 151 wherein the monitoring comprises monitoring the turbidity of the flush fluid during the priming and the controlling comprises controlling the priming.

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154. [New] A semiconductor workpiece processing method comprising:
providing a semiconductor processor system having a process chamber adapted to process a semiconductor workpiece;
processing the semiconductor workpiece within the process chamber using a process fluid;
monitoring the process fluid;
controlling at least one operation of the semiconductor processor system responsive to the monitoring;
wherein the monitoring comprises monitoring turbidity of the process fluid;
receiving a halt command of the semiconductor processor system; and
flushing a connection configured to transport the process fluid responsive to the receiving.

155. [New] The method of claim 154 wherein the flushing comprises flushing with flush fluid comprising a rinse fluid.

156. [New] The method of claim 154 wherein the monitoring comprises monitoring the turbidity of the flush fluid during the flushing and the controlling comprises controlling the flushing.